2 Air Emissions/Air Quality Research

Field Research at Selected Installations

Military installations typically have numerous air emissions sources. For these sources, the facilities may be required to obtain emissions permits and perform compliance monitoring and reporting. For the major installations throughout the United States, maintaining compliance related information could be a complex and significant task. For example, it was determined from Baker's site visit to APG, that there are approximately 1,500 potential air emissions sources listed in their air emission inventory (Aberdeen and Edgewood areas). Two hundred eighty of these sources are regulated and require permits under Maryland State law. In addition, APG has also recently submitted an application to obtain a federal Title V operating permit that will require air monitoring at the facility boundary.

Emissions are generated from a variety of sources. These include boilers, paint spray booths, printing press facilities, degreasing facilities, generators, incinerators, asbestos conversion facilities, gasoline tanks and handling facilities, abrasive blasting booths, remediation systems, and unique military sources (e.g., fire safety test enclosure and fire test lab). Existing regulated sources required operating permit. New sources require pre-construction permits before construction can begin, and operating permits before their operation can begin. These permits may include emission limitations, operating restrictions, and compliance demonstrations.

Due to the potential for the generation of a large volume of air management data associated with installations, it is obviously beneficial for installations to be able to manage this information electronically. In fact, at each of the installations visited by Baker, air emissions information was available in an electronic format. However, each installation utilized different means and methods for organizing information and conducting compliance related activities (i.e., monitoring, reporting, and recordkeeping). While none of the installations were currently managing information via CADD/GIS, air compliance managers generally felt that CADD/GIS would be a useful tool for managing and extracting information relating to air emissions sources.

DESCIM Data Models

The following five DESCIM data models related to air were reviewed and evaluated:

Av1_er1.pdf	Emission Control Equipment Model
Av2_er1.pdf	Emission Control System
Av3_er1.pdf	Air Emission Process
Av4.pdf	Air Emission Acted Upon Objects
Av5_er1.pdf	*Unnamed*

The DESCIM data models were reviewed for compliance-related tables and attributes that could be incorporated into the TSFMS.

EPA's AIRS/AFS Air Pollution Management Module

EPA's Envirofacts Warehouse is stored within an Oracle database that is used to maintain information concerning numerous aspects of compliance. Baker accessed the Envirofacts Warehouse (http://www.epa.gov/enviro/html/ef_overview) to identify potential entity types and attributes that the EPA uses to manage environmental compliance information. More specifically, the Aerometric Information and Retrieval System/AIRS Facility Subsystem (AIRS/AFS) module, which maintains air pollution data on approximately 150,000 facilities regulated by the USEPA and/or state and local air regulatory agencies, was reviewed. Data models and data structures information were available within the AIRS/AFS system, as well as in a downloadable form from EPA's Environmental Data Registry (EDR) which can be accessed via http://www.epa.gov/edr. The AIRS/AFS module data-structure was evaluated for potential adaptation of components to the TSFMS. Components that could be adapted to the TSFMS database were included in the proposed data structure.

Patuxent River ENRMS Module of the APMM

Of the three installations visited, only Pax River is developing a sophisticated system that could be considered reflective of the goals of the TSFMS for managing facility resources. The Activities Planning Management Module (APMM), while still under development, contains several active modules available to base personnel for managing numerous types of facilities information. One component of the APMM is the Environmental and Natural Resources Management System (ENRMS). The ENRMS Mission Function is as follows: "The Environmental and Natural Resources Management System (ENRMS) has been developed to enable facility environmental managers to ensure base compliance, manage Installation Restoration (IR) project integrity, preserve natural and cultural resources, and execute pollution prevention programs."

The following air permitting/air quality features within ENRMS are typical of the Tri-Services entity-class level:

a. Air Sources Inventory
b. Source Usage/Emissions Estimation
c. Permit Tracking

The relevant attributes within these features were incorporated into the proposed data structure.

Other Information Sources

Baker also reviewed the following documents to identify data elements for potential inclusion into the TSFMS:

a. EPA-454/B-94-003, AIRS User's Guide, Volume AF1, Version 2.0, AFS Data Dictionary. Data dictionary of the EPA AIRS Facility Subsystem, the facility database of the Aerometric Information Retrieval System (AIRS).

b. U.S. Army, Alaska. Environmental Handbook.

c. Baker's internal air emissions/air quality compliance experience and historical documentation (through the Baker Environmental, Inc. office in Coraopolis, Pennsylvania).